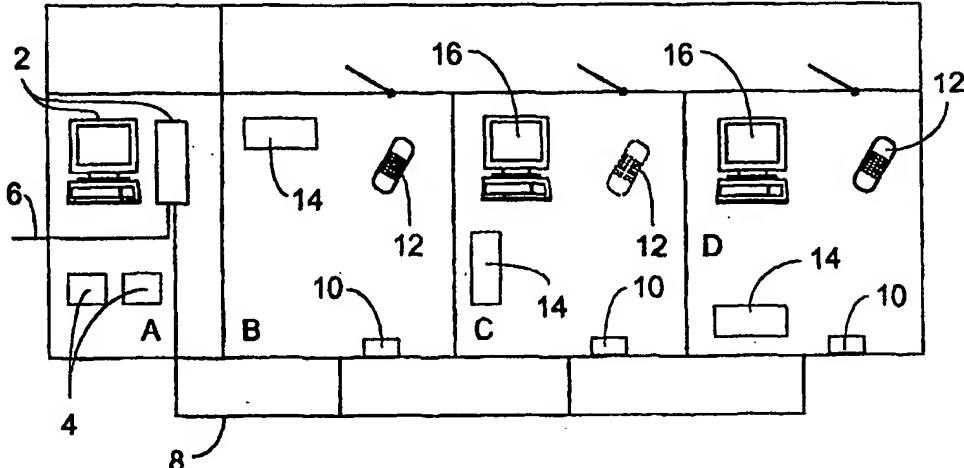




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(54) Title: ENTERTAINMENT AND INFORMATION SYSTEM FOR DOMESTIC USE



(57) Abstract

While it is well known that from a central signal source such as a radio or CD player the relevant signals can be transmitted for reproduction in the individual building rooms, the invention proposes to use a central multisignal source such as an ordinary PC which on its harddisc may hold many different signal sequences which in a selective manner can be sent for reproduction in the individual rooms. The signal source may also be connected with actually operating radio or video sources, telephone network or internet for selective reproduction in the various rooms. Moreover, the system may comprise priority giving, portable transmitters which, on arrival in the single rooms, will activate a receiver for achieving a reproduction of signals of a type corresponding to the choice of the higher priority. These transmitters may be housed in remote control units for two-way communication with constitute telephone handsets and units for reception and transmission of E-mail.

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Entertainment and information system for domestic
use.

The present invention concerns an entertainment and
5 information system, primarily for use in individual house-
holds. It is already known that with the use of a central ra-
dio receiving system or diverse systems for the play-back of
sound carriers, it is possible in a selective manner to dis-
tribute the sound out to sound transducers in the various
10 rooms in the house, in that an activation or de-activation or
a changeover of the transducer channel can be effected in the
individual rooms.

The object of the invention is to provide a system
of this type, but which distinguishes itself by comprehensive
15 extension of the function possibilities. The system according
to the invention is based on the use of more-or-less ordinary
PCs as the central system, i.e. a relatively inexpensive unit
which on its hard disk can be programmed with a large number
of data sequences, such as pieces of music on or from re-
20 corded sound carriers, e.g. in the form of tape or compact
disks. By means of suitable interface equipment and a list of
access codes drawn up for the various sequences, it will
hereby be possible to select any desired sequence or even a
series of sequences of a predetermined type from any room in
25 the house. For example, a senior member of the household in
his/her local area can hereby select one or a whole series of
desired classical music sequences, while a junior member at
the same time and in another room can select his/her pre-
ferred, more modern music from the same central unit. It is
30 hereby important that it is the household's own members who
have originally selected the recorded sequences, so that the
central unit is not loaded with irrelevant recordings.

In this connection it should be mentioned that from
e.g. US-A-5,497,502 and GB-A-2,166,328, it is known to ar-

range the connection of "household subscribers" to central multi-programme transmitters which make it possible to make a selective choice of programmes. However, for a suitable versatility, these transmitters must be connected to a programme store of extremely great capacity, and the primary intention of the invention is that the programme capacity, for which there is an actual need in the individual household, can be stored to a wide extent in an ordinary commercial PC (Personal Computer), precisely because the need for versatility will be considerably reduced when the PC is programmed by the members of the household themselves.

It is worth mentioning that by means of a known signal compression technique, several hundred compact disks can be stored on an ordinary hard disk, i.e. an ordinary home computer will normally already be able to store pieces of music in ample numbers for the satisfaction of listening interests among all members of the household, and naturally there will still be the possibility of arranging the recording of new sequences from relevant sources of sound, also including from a radio or video receiver.

For the desirable selective choice of data or music sequences for the individual rooms, it is important that at the central unit or in the individual room it is possible to effect the necessary programming of the central unit for the codification of the recorded sequences. This can be carried out by means of the PC keyboard or by keyboards in the respective rooms. These keyboards can possibly be connected to the internal communication system in a cordless manner, e.g. by means of infrared technique.

To the central unit there can be connected all possible alternative sources of data, such as radio, telephone, telefax or even video sources, Internet and e-mail, so that there are rich possibilities for a selective transmission of signals to the individual rooms, merely providing that the

desired signal type can be clearly identified for transmission to the relevant room in the household, or respectively from such a room. The system can also be used as the connection base for computer networks and intercom.

5 The system will be able to be used with priority controls of various types, for example so that the selection of a telephone line made from a "senior room" while the line is engaged by a connection to or from a "junior room", will initiate the sending of a signal to junior to indicate that
10 he/she is requested to break the relevant connection within a few minutes, or that the line will be forcibly disconnected by such a signal. The signal can be sent via the telephone line and/or by separate signal transmission to the junior room.

15 As a second example, it can be mentioned that both junior and senior can have portable transmitter or transponder units which, in connection with a choice of music type or other programme selections, can automatically give rise to the correct selection when the person enters any given room,
20 though hereby on the condition that the given room is not already occupied by person having a higher priority regarding choice of programme. Correspondingly, this person, typically "senior", will be able to initiate a relevant changeover of the programme choice merely by his entry into a room in which
25 the system works with a programme type of lower priority, or simply a switching-off of this programme, regardless of whether the lower priority selection is a result of a permanent programme selection for the relevant room, typically a "junior room", or by the presence of a person with lower priority in a "senior room" with higher priority, or in a more neutral room such as a kitchen in which work is normally carried out outside the normal hours of kitchen work. In the same way, other relevant influences can be initiated, e.g. a

reducing of the volume of the music in a junior room by the entry of a senior into the room.

The system can be provided with remote control units in the individual rooms, or in combination with said 5 portable transmitter units carried by the members of the household. These units can effect two-way communication with the system network, e.g. via infrared-operated transmitter/receiver units in the individual rooms, and in accordance with the invention they can be combined with other relevant 10 arrangements such as comprising a telephone handset, possibly with related telephone answering and recording equipment, and e.g. with a display to show the arrival of incoming e-mail. Controlled from the central unit, this can thus be selected for showing on the display or for speech reproduction in a 15 loudspeaker, either in the remote control unit or in a permanent loudspeaker in the individual room.

With suitable transformation equipment, the system will be able to be arranged in such a manner that based on 20 speech transmission or computer-programmed speech recognition, an e-mail will e.g. be able to be keyed-in or even entered orally for transmission via the central unit.

It will thus be seen that functionally, the remote control unit relevant for the invention can be a quite complicated unit. However, this will be able to be built up 25 based on fully-known principles as far as the individual functions are concerned, including e.g. by comprising an internet browser which, however, will also be able to be placed in the central unit. Consequently, in principle there is no technological problem involved in configuring the remote control unit in the manner disclosed.

The invention is illustrated by way of example in the drawing, which schematically shows four adjoining rooms A,B,C and D. In room A there is placed a PC 2 and various items of audio/video equipment 4 which can be used for the

recording of selected sequences on the PC's hard disk, in
that the PC's keyboard can be used for the cataloguing of the
sequences or possibly merely the different types of these,
all depending on the different requirements of the individual
5 persons in the household. The PC is connected by a communica-
tion line 6 to an external network, preferably an ISDN con-
nection.

For communication, the PC 2 is connected via an in-
ternal bus connection 8 to the rooms B,C and D, which here
10 are assumed to be a senior living room, a senior workroom and
a junior room respectively. Internal connections in the rooms
are not shown. In each room there is a receiver/transmitter
10 for communication with a remote control unit 12 which be-
longs to the room, respectively to the main users of the
15 room. In the rooms there are also diverse transducers 14 for
audio and/or video signals, and possibly a telephone instal-
lation and computers 16.

If necessary, the PC 2 is provided with several
sound boards and extra RAM, possibly also with one or more
20 so-called ScSi drivers on the PC's PCI bus system, or other
facilities which enable multi-channel operation with good ca-
pacity and quality.

By means of the remote controls 12, the users can
select desired couplings or sequences for reproduction in the
25 respective rooms. As mentioned, the units 12 can be small
terminals for the expedition of e-mail, and alternatively
they can also comprise handsets in the telephone system.

If "senior" with his unit 12 enters the room D, the
unit 10 can via the interface immediately register that there
30 is now a person with higher priority present in the room, so
that the control system can hereby initiate a pre-programmed
action such as the moderation of rock music which is too
high. The system can work with many different forms of prior-
ity, e.g. so that the kitchen monitor has top priority for

coupling the Internet during a period of time in which it may be relevant to work with recipes fetched from the net.

It must be mentioned that the necessary cable connections in the system can expediently be established by use
5 of the so-called USB system (Universal Serial Bus), with USB transceivers connected in the individual rooms for two-way communication with operating and monitoring units herein, including displays and sound transducers. The system can work with analogue or digital signal transmission as required, and
10 use can possibly be made of wireless transmission or signal transmission via the mains power network.

C L A I M S

1. Entertainment and information system, primarily for use in individual households, comprising a central signal transmission unit for the emission of a source signal, e.g. in the form of music sequences, which by use of suitable monitors such as loudspeakers in the individual rooms can be reproduced in these in an individually-controllable manner, characterized in that the central signal transmission unit comprises a multi-signal emitting unit such as a more-or-less ordinary PC, which is programmed for the possible emission of a number of different signal sequences which can be called for in a selective manner, and that in the individual rooms there are placed operating means which make it possible for each of these sequences or parts thereof to be called for in said selective manner.

2. System according to claim 1, characterized in that receivers are placed in the individual rooms for the detection of the selective calling signals from respective remote control units, which preferably also comprise telephone handsets and possibly stations for the expedition of e-mail.

3. System according to claim 1, characterized in that the central signal transmission unit is connected to other and momentary-operating signal sources such as radio, telephone or video channels, with the possibility of calling these signals selectively for reproduction in the individual rooms.

4. System according to claim 1, characterized in that it is provided with a control unit which determines priorities with regard to calls to or calls from the individual rooms, all depending on the kind of calls in or out or other predetermined criteria.

5. System according to claim 4, characterised in that it comprises portable transmission units which, when influenced from receivers placed in the rooms, determine a higher or lower priority for transmission of pre-
5 determined types of signals to a monitor in that room in which the relevant person is present.

6. System according to claim 1, characterised in that it is based on the USB system for establishing the relevant two-way communication.

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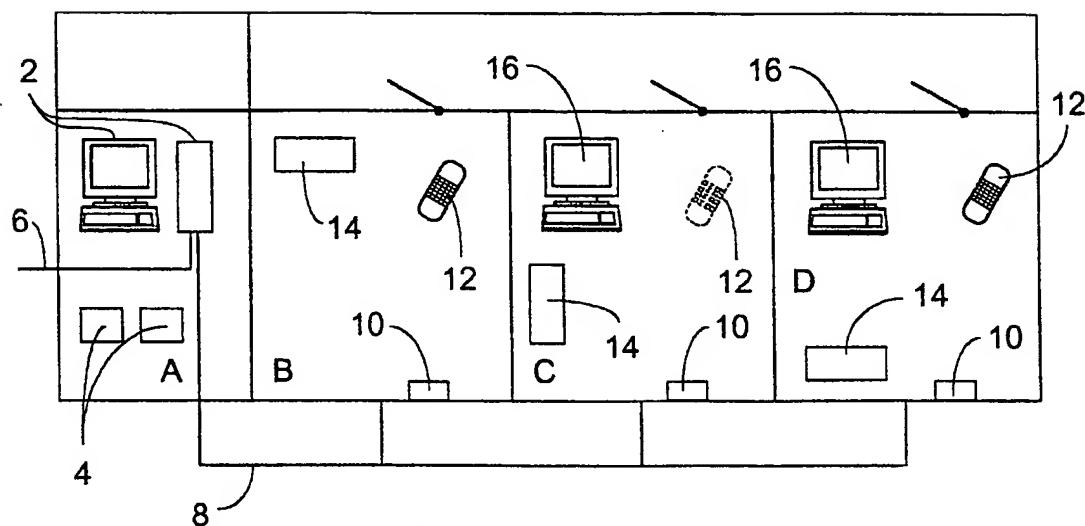


Fig.1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 99/00328

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9736391 A1 (GATEWAY 2000, INC.), 2 October 1997 (02.10.97), page 3, line 13 - page 4, line 5	1-3,6
A	--	4-5
X	US 5497502 A (JEAN-PAUL G. CASTILLE), 5 March 1996 (05.03.96), column 1, line 51 - column 2, line 11	1,3,6
Y	--	2
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 Further documents are listed in the continuation of Box C. See patent family annex.

- * Special categories of cited documents
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Date of the actual completion of the international search

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 5418713 A (RICHARD ALLEN), 23 May 1995 (23.05.95), page 3, line 16 - page 6, line 21	1-6
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INTERNATIONAL SEARCH REPORT

Information on patent family members

28/09/99

International application No.

PCT/DK 99/00328

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